Pflügers Archiv

European Journal of Physiology

Vol. 372 1977

Field Editors

J. Th. F. Boeles, Amsterdam · H. Bornschein, Wien
D. L. Brutsaert, Antwerpen · V. Capraro, Milano
R. Casteels, Leuven · J. Crabbé, Bruxelles
E. Gerlach, München · H. Hensel, Marburg
K. Hierholzer, Berlin · S. M. Hilton, Birmingham
W. D. Keidel, Erlangen · H. H. Loeschcke, Bochum
H. Meves, Plymouth · E. Simon, Bad Nauheim
L. Tauc, Paris · G. Thews, Mainz · K. Thurau, München
W. Trautwein, Homburg (Saar)
K. J. Ullrich, Frankfurt (Main) · E. Wetterer, Erlangen
W. G. Zijlstra, Groningen

Subject Editors

N. A. Lassen, København · P. Deetjen, Innsbruck
O. Pompeiano, Pisa

Coordinating Editor

F. Kreuzer, Nijmegen

Springer International

Pflügers Archiv · European Journal of Physiology

Founded in 1868 as „Pflügers Archiv für die gesamte Physiologie des Menschen und der Tiere" by *E. F. W. Pflüger*. Edited by *M. Verworn, E. Abderhalden, A. Bethe, R. Höber, A. v. Muralt, H. Rein* et al.

Published: Vol. 1—29 (1876) Bonn, Cohen und Sohn; Vol. 30—92 (1901) Bonn, E. Strauß; Vol. 93—170 (1917) Bonn, M. Hager; since Vol. 171 (1918) Berlin, Springer.

Since 1920 Pflügers Archiv has included: „Archiv für Physiologie" (Archiv für Anatomie und Physiologie, Physiologische Abteilung). Founded and edited by Johannes Müller, E. du Bois-Reymond, W. v. Waldeyer-Hartz et al. 1877—1914. Leipzig, Veit und Co., since 1915, Berlin, Vereinigung Wissenschaftlicher Verleger, afterwards Walter de Gruyter.

Alle Rechte, einschließlich das der Übersetzung in fremde Sprachen und das der fotomechanischen Wiedergabe oder einer sonstigen Vervielfältigung, auch in Mikroform, vorbehalten. Jedoch wird gewerblichen Unternehmen für den innerbetrieblichen Gebrauch nach Maßgabe des zwischen dem Börsenverein des Deutschen Buchhandels e.V. und dem Bundesverband der Deutschen Industrie abgeschlossenen Rahmenabkommens die Anfertigung einer fotomechanischen Vervielfältigung gestattet. Wenn für diese Zeitschrift kein Pauschalabkommen mit dem Verlag vereinbart worden ist, ist eine Wertmarke im Betrage von DM 0,40 pro Seite zu verwenden. *Der Verlag läßt diese Beträge den Autorenverbänden zufließen.*

Die Wiedergabe von Gebrauchsnamen, Handelsnamen, Warenbezeichnungen usw. in dieser Zeitschrift berechtigt auch ohne besondere Kennzeichnung nicht zu der Annahme, daß solche Namen im Sinne der Warenzeichen- und Markenschutz-Gesetzgebung als frei zu betrachten wären und daher von jedermann benutzt werden dürften.

The exclusive copyright for all languages and countries, including the right for photomechanical and any other reproductions, also in microform, is transferred to the publisher.

The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Springer-Verlag Berlin Heidelberg New York

Printers: Wiesbadener Graphische Betriebe GmbH, Wiesbaden

Printed in Germany — © by Springer-Verlag Berlin Heidelberg 1977

Contents

Assumpçao, J. A., s. Bernardi, N., et al. 203

Bassenge, E., s. Holtz, J., et al. 187

Bassenge, E., s. Restorff, W. von, et al. 181

Bauduin, H., Stock, C., Launay, J. F., Vincent, D., Potvliege, P., Grenier, J. F.
On the Secretagogue Effect of Dibutyryl Cyclic AMP in the Rat Exocrine Pancreas 69

Bauer, C., s. Jelkmann, W. 149

Baumann, G., s. Schrader, J., et al. 29

Behn, C., Lübbemeier, A., Weskamp, P.
Chlorotetracycline Induces Calcium Mediated Shape Changes in Human Erythrocytes. Is Ca Asymmetrically Distributed in the Red Cell Membrane? 259

Bennett, J. W,. s. Hales, J. R. S., et al. 157

Bernardi, N., Assumpçao, J. A., Dacke, C. G., Davidson, N.
Calcium-Dependent Increase in Efflux of [1-^{3}H] Taurine from the Superfused Rat Cerebellar Cortex in vivo 203

Bernards, J. A., s. Smolders, F. D. J., et al. 289

Borne, P. van de, s. Spaan, J. A. E., et al. 279

Bornschein, H., s. Trappl, R., et al. 165

Brendel, U., Györy, A. Z., Kinne, R.
Studies on the Binding Characteristics of Antimycin A and Albumin in Relation to the Inhibitor Activity of the Complex on Rat Proximal Tubular Sodium Transport 77

Camerer, H., s. Kreuter, F., et al. 7

Caston, J., Gribenski, A.
Influence of the Saccule, Lagena and Vertical Posterior Canal on the Ipsilateral Horizontal and Vertical Anterior Semicircular Canals in *Rana esculeta*: Role of Receptor-Receptor Fibres 139

Dacke, C. G., s. Bernardi, N., et al. 203

Davidson, N., s. Bernardi, N., et al. 203

Delmore, G., Koller, E. A.
The Role of Augmented Breaths (Sighs) in Bronchial Asthma Attacks 1

Ehrlein, H.-J., s. Hörnicke, H., et al. 95

Engelhardt, W. v., s. Hörnicke, H., et al. 95

Fawcett, A. A., s. Hales, J. R. S., et al. 157

Folgering, H. Th., s. Smolders, F. D. J., et al. 289

Friedman, P. A., Roch-Ramel, F.
Micropuncture Study of Fluid Handling in Cat Kidney 239

Garred, L. J., s. Spaan, J. A. E., et al. 279

Gerlach, E., s. Schrader, J., et al. 29

Goupil, N., s. Lenfant, J. 121

Gray, T. A., s. Petersen, O. H., et al. 231

Grenier, J. F., s. Bauduin, H., et al. 69

Gribenski, A., s. Caston, J. 139

Grote, J., Süsskind, R., Vaupel, P.
Oxygen Diffusivity in Tumor Tissue (DS-Carcinosarcoma) under Temperature Conditions within the Range of 20–40° C 37

Györy, A. Z., s. Brendel, U., et al. 77

Hales, J. R. S., Bennett, J. W., Fawcett, A. A.
Integrated Changes in Regional Circulatory Activity Evoked by Thermal Stimulation of the Hypothalamus 157

Hall, R. A., s. Petersen, O. H., et al. 231

Hasegawa, Y., s. Sato, H. 195

Hörnicke, H., Engelhardt, W. v., Ehrlein, H.-J.
Effect of Exercise on Systemic Blood Pressure and Heart Rate in Horses 95

Hohlbrugger, G., s. Olbricht, C., et al. 251

Holtz, J., Mayer, E., Bassenge, E.
Demonstration of Alpha-Adrenergic Coronary Control in Different Layers of Canine Myocardium by Regional Myocardial Sympathectomy 187

Holtz, J., s. Restorff, W. von, et al. 181

Humpeler, E., Vogel, S.
Oxygen Affinity of Hemoglobin in Postmenopausal Woman 287

Ikemoto, Y.
Reduction by Thiopental of the Slow-Channel-Mediated Action Potential of Canine Papillary Muscle 285

Irisawa, H., s. Noma, A., et al. 43

Jelkmann, W., Bauer, C.
Oxygen Affinity and Phosphate Compounds of Red Blood Cells during Intrauterine Development of Rabbits 149

Jong, W. de, s. Zandberg, P., et al. 169

Kinne, R., s. Brendel, U., et al. 77

Klöss, S., s. Ullrich, K. J., et al. 269

Kölling, K., s. Riemer, J., et al. 243

Kövér, G., Tost, H.
The Effect of Indomethacin on Kidney Function: Indomethacin and Furosemide Antagonism 215

Kolin, A.
A System for Intravascular, Radially Orientation-Independent Electromagnetic Flow- and Diameter-Sensing 109

Koller, E. A., s. Delmore, G. 1

Krausz, S.
A Pharmacological Study of the Control of Nasal Cooling in the Dog 115

Kreuter, F., Richter, D. W., Camerer, H., Senekowitsch, R.
Morphological and Electrical Discription of Medullary Respiratory Neurons of the Cat 7

Kuschinsky, W., s. Schneider, W., et al. 103

Launay, J. F., s. Bauduin, H., et al. 69

Lenfant, J., Goupil, N.
Effects of the Replacement of Chloride by Methylsulphate on the Membrane Currents in Frog Atrial Trabeculae 121

Leniger-Follert, E.
Direct Determination of Local Oxygen Consumption of the Brain Cortex in vivo 175

Loeschke, K., Resch, W.
Nucleic Acid and Protein Content of Rat Cecum Mucosa in Dietary Adaptation—Growth by Cellular Hyperplasia 91

Loeschke, K., s. Schiffl, H. 83

Lübbemeier, A., s. Behn, C., et al. 259

Lützow, A. v., s. Trappl, R., et al. 165

Mason, J., s. Olbricht, C., et al. 251

Matsubara, I., s. Yagi, N. 113

Mayer, C. J., s. Riemer, J., et al. 243

Mayer, E., s. Holtz, J., et al. 187

Pflügers Archiv · European Journal of Physiology

Founded in 1868 as „Pflügers Archiv für die gesamte Physiologie des Menschen und der Tiere" by *E. F. W. Pflüger*. Edited by *M. Verworn, E. Abderhalden, A. Bethe, R. Höber, A. v. Muralt, H. Rein* et al.

Published: Vol. 1—29 (1876) Bonn, Cohen und Sohn; Vol. 30—92 (1901) Bonn, E. Strauß; Vol. 93—170 (1917) Bonn, M. Hager; since Vol. 171 (1918) Berlin, Springer.

Since 1920 Pflügers Archiv has included: „Archiv für Physiologie" (Archiv für Anatomie und Physiologie, Physiologische Abteilung). Founded and edited by Johannes Müller, E. du Bois-Reymond, W. v. Waldeyer-Hartz et al. 1877—1914. Leipzig, Veit und Co., since 1915, Berlin, Vereinigung Wissenschaftlicher Verleger, afterwards Walter de Gruyter.

Alle Rechte, einschließlich das der Übersetzung in fremde Sprachen und das der fotomechanischen Wiedergabe oder einer sonstigen Vervielfältigung, auch in Mikroform, vorbehalten. Jedoch wird gewerblichen Unternehmen für den innerbetrieblichen Gebrauch nach Maßgabe des zwischen dem Börsenverein des Deutschen Buchhandels e.V. und dem Bundesverband der Deutschen Industrie abgeschlossenen Rahmenabkommens die Anfertigung einer fotomechanischen Vervielfältigung gestattet. Wenn für diese Zeitschrift kein Pauschalabkommen mit dem Verlag vereinbart worden ist, ist eine Wertmarke im Betrage von DM 0,40 pro Seite zu verwenden. *Der Verlag läßt diese Beträge den Autorenverbänden zufließen.*

Die Wiedergabe von Gebrauchsnamen, Handelsnamen, Warenbezeichnungen usw. in dieser Zeitschrift berechtigt auch ohne besondere Kennzeichnung nicht zu der Annahme, daß solche Namen im Sinne der Warenzeichen- und Markenschutz-Gesetzgebung als frei zu betrachten wären und daher von jedermann benutzt werden dürften.

The exclusive copyright for all languages and countries, including the right for photomechanical and any other reproductions, also in microform, is transferred to the publisher.

The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Springer-Verlag Berlin Heidelberg New York

Printers: Wiesbadener Graphische Betriebe GmbH, Wiesbaden

Printed in Germany — © by Springer-Verlag Berlin Heidelberg 1977

Contents

Assumpçao, J. A., s. Bernardi, N., et al. 203

Bassenge, E., s. Holtz, J., et al. 187

Bassenge, E., s. Restorff, W. von, et al. 181

Bauduin, H., Stock, C., Launay, J. F., Vincent, D., Potvliege, P., Grenier, J. F.
On the Secretagogue Effect of Dibutyryl Cyclic AMP in the Rat Exocrine Pancreas 69

Bauer, C., s. Jelkmann, W. 149

Baumann, G., s. Schrader, J., et al. 29

Behn, C., Lübbemeier, A., Weskamp, P.
Chlorotetracycline Induces Calcium Mediated Shape Changes in Human Erythrocytes. Is Ca Asymmetrically Distributed in the Red Cell Membrane? 259

Bennett, J. W,. s. Hales, J. R. S., et al. 157

Bernardi, N., Assumpçao, J. A., Dacke, C. G., Davidson, N.
Calcium-Dependent Increase in Efflux of [1-^{3}H] Taurine from the Superfused Rat Cerebellar Cortex in vivo 203

Bernards, J. A., s. Smolders, F. D. J., et al. 289

Borne, P. van de, s. Spaan, J. A. E., et al. 279

Bornschein, H., s. Trappl, R., et al. 165

Brendel, U., Györy, A. Z., Kinne, R.
Studies on the Binding Characteristics of Antimycin A and Albumin in Relation to the Inhibitor Activity of the Complex on Rat Proximal Tubular Sodium Transport 77

Camerer, H., s. Kreuter, F., et al. 7

Caston, J., Gribenski, A.
Influence of the Saccule, Lagena and Vertical Posterior Canal on the Ipsilateral Horizontal and Vertical Anterior Semicircular Canals in *Rana esculeta*: Role of Receptor-Receptor Fibres 139

Dacke, C. G., s. Bernardi, N., et al. 203

Davidson, N., s. Bernardi, N., et al. 203

Delmore, G., Koller, E. A.
The Role of Augmented Breaths (Sighs) in Bronchial Asthma Attacks 1

Ehrlein, H.-J., s. Hörnicke, H., et al. 95

Engelhardt, W. v., s. Hörnicke, H., et al. 95

Fawcett, A. A., s. Hales, J. R. S., et al. 157

Folgering, H. Th., s. Smolders, F. D. J., et al. 289

Friedman, P. A., Roch-Ramel, F.
Micropuncture Study of Fluid Handling in Cat Kidney 239

Garred, L. J., s. Spaan, J. A. E., et al. 279

Gerlach, E., s. Schrader, J., et al. 29

Goupil, N., s. Lenfant, J. 121

Gray, T. A., s. Petersen, O. H., et al. 231

Grenier, J. F., s. Bauduin, H., et al. 69

Gribenski, A., s. Caston, J. 139

Grote, J., Süsskind, R., Vaupel, P.
Oxygen Diffusivity in Tumor Tissue (DS-Carcinosarcoma) under Temperature Conditions within the Range of 20–40° C 37

Györy, A. Z., s. Brendel, U., et al. 77

Hales, J. R. S., Bennett, J. W., Fawcett, A. A.
Integrated Changes in Regional Circulatory Activity Evoked by Thermal Stimulation of the Hypothalamus 157

Hall, R. A., s. Petersen, O. H., et al. 231

Hasegawa, Y., s. Sato, H. 195

Hörnicke, H., Engelhardt, W. v., Ehrlein, H.-J.
Effect of Exercise on Systemic Blood Pressure and Heart Rate in Horses 95

Hohlbrugger, G., s. Olbricht, C., et al. 251

Holtz, J., Mayer, E., Bassenge, E.
Demonstration of Alpha-Adrenergic Coronary Control in Different Layers of Canine Myocardium by Regional Myocardial Sympathectomy 187

Holtz, J., s. Restorff, W. von, et al. 181

Humpeler, E., Vogel, S.
Oxygen Affinity of Hemoglobin in Postmenopausal Woman 287

Ikemoto, Y.
Reduction by Thiopental of the Slow-Channel-Mediated Action Potential of Canine Papillary Muscle 285

Irisawa, H., s. Noma, A., et al. 43

Jelkmann, W., Bauer, C.
Oxygen Affinity and Phosphate Compounds of Red Blood Cells during Intrauterine Development of Rabbits 149

Jong, W. de, s. Zandberg, P., et al. 169

Kinne, R., s. Brendel, U., et al. 77

Klöss, S., s. Ullrich, K. J., et al. 269

Kölling, K., s. Riemer, J., et al. 243

Kövér, G., Tost, H.
The Effect of Indomethacin on Kidney Function: Indomethacin and Furosemide Antagonism 215

Kolin, A.
A System for Intravascular, Radially Orientation-Independent Electromagnetic Flow- and Diameter-Sensing 109

Koller, E. A., s. Delmore, G. 1

Krausz, S.
A Pharmacological Study of the Control of Nasal Cooling in the Dog 115

Kreuter, F., Richter, D. W., Camerer, H., Senekowitsch, R.
Morphological and Electrical Discription of Medullary Respiratory Neurons of the Cat 7

Kuschinsky, W., s. Schneider, W., et al. 103

Launay, J. F., s. Bauduin, H., et al. 69

Lenfant, J., Goupil, N.
Effects of the Replacement of Chloride by Methylsulphate on the Membrane Currents in Frog Atrial Trabeculae 121

Leniger-Follert, E.
Direct Determination of Local Oxygen Consumption of the Brain Cortex in vivo 175

Loeschke, K., Resch, W.
Nucleic Acid and Protein Content of Rat Cecum Mucosa in Dietary Adaptation—Growth by Cellular Hyperplasia 91

Loeschke, K., s. Schiffl, H. 83

Lübbemeier, A., s. Behn, C., et al. 259

Lützow, A. v., s. Trappl, R., et al. 165

Mason, J., s. Olbricht, C., et al. 251

Matsubara, I., s. Yagi, N. 113

Mayer, C. J., s. Riemer, J., et al. 243

Mayer, E., s. Holtz, J., et al. 187

Melichar, I., Syka, J.
Time Course of Anoxia-Induced K^+ Concentration Changes in the Cochlea Measured with K^+ Specific Microelectrodes 207

Meyer-Lohmann, J., s. Windhorst, U. 131

Muheim, M. H.
Fabrication of Well Defined Micropipette Tips by Hydrofluoric Acid Etching 101

Nakazato, Y., Onoda, Y., Ohga, A.
Role of Calcium in the Release of Noradrenaline Induced by Sodium Deprivation from the Guinea-Pig Vas Deferens 63

Nishi, K., Sakanashi, M., Takenaka, F.
Activation of Afferent Cardiac Sympathetic Nerve Fibers of the Cat by Pain Producing Substances and by Noxious Heat 53

Noma, A., Yanagihara, K., Irisawa, H.
Inward Current of the Rabbit Sinoatrial Node Cell 43

Ohga, A., s. Nakazato, Y., et al. 63

Olbricht, C., Mason, J., Takabatake, T., Hohlbrugger, G., Thurau, K.
The Early Phase of Experimental Acute Renal Failure. II. Tubular Leakage and the Reliability of Glomerular Markers 251

Onoda, Y., s. Nakazato, Y., et al. 63

Ouwerkerk, H. J. van
Facilitated Diffusion in a Tissue Cylinder with an Anoxic Region 221

Owens, B., s. Perez, G. O., et al. 275

Palkovits, M., s. Zandberg, P., et al. 169

Peiper, U.
Force-Velocity Relations of the Portal Vein of Hyperthyroid Rats 23

Perez, G. O., Rietberg, B., Owens, B., Schiff, E. R.
Effect of Acute Uremia on Arginine Metabolism and Urea and Guanidine Acid Production by Perfused Rat Liver

Petersen, O. H., Ueda, N., Hall, R. A., Gray, T. A.
The Role of Calcium in Parotid Amylase Secretion Evoked by Excitation of Cholinergic, α- und β-Adrenergic Receptors 231

Potvliege, P., s. Bauduin, H., et al. 69

Resch, W., s. Loeschke, K. 91

Restorff, W. von, Holtz, J., Bassenge, E.
Exercise Induced Augmentation of Myocardial Oxygen Extraction in Spite of Normal Coronary Dilatory Capacity in Dogs 181

Richter, D. W., s. Kreuter, F., et al. 7

Riemer, J., Kölling, K., Mayer, C. J.
The Effect of Motilin on the Electrical Activity of Rabbit Circular Duodenal Muscle 243

Rietberg, B., s. Perez, G. O., et al. 275

Roch-Ramel, F., s. Friedman, P. A. 239

Rumrich, G., s. Ullrich, K. J., et al. 269

Sakanashi, M., s. Nishi, K., et al. 53

Sato, H., Hasegawa, Y.
Reflex Changes in Discharge Activities of Gamma Efferents to Varying Skin Temperatures in Cats 195

Schalow, G., Schmidt, H.
Effect of Nerve Length and Temperature on the Induction of Action Potentials in Denervated Slow Muscle Fibres of the Frog 17

Schiff, E. R., s. Perez, G. O., et al. 275

Schiffl, H., Loeschke, K.
Induction of Na-K-ATPase in Plasma Membranes of Rat Cecum Mucosa by Diet: Time Course and Kinetics 83

Schmidt, H., s. Schalow, G. 17

Schneider, W., Wahl, M., Kuschinsky, W., Thurau, K.
The Use of Microelectrodes for Measurement of Local H^+ Activity in the Cortical Subarachnoidal Space of Cats 103

Schrader, J., Baumann, G., Gerlach, E.
Adenosine as Inhibitor of Myocardial Effects of Catecholamines 29

Senekowitsch, R., s. Kreuter, F., et al. 7

Smeds, S.
On the Distribution of Thyroglobin and Larger Iodoproteins in Single Rat Thyroid Follicles 145

Smolders, F. D. J., Folgering, H. Th., Bernards, J. A.
Capnostat and Oxystat. Electronic Devices to Automatically Maintain the End-Tidal P_{CO_2} and P_{O_2} of a Subject Connected to a Closed Respiratory Circuit at Adjustable Levels 289

Spaan, J. A. E., Garred, L. J., Borne, P. van de
Use of a Wedge Cuvette in Thin Layer Photometry and Its Application to Oximetry 279

Stock, C., s. Bauduin, H., et al. 69

Süsskind, R., s. Grote, J., et al. 37

Syka, J., s. Melichar, I. 207

Takabatake, T., s. Olbricht, C., et al. 251

Takenaka, F., s. Nishi, K., et al. 53

Thurau, K., s. Olbricht, C., et al. 251

Thurau, K., s. Schneider, W., et al. 103

Tost, H., s. Kover, G. 215

Trappl, R., Lützow, A. v., Wündsch, L., Bornschein, H.
A Second Order Model of the Optic Generator Potential and Its Relation to Stevens' Power Function 165

Ueda, N., s. Petersen, O. H., et al. 231

Ullrich, K. J., Rumrich, G., Klöss, S.
Phosphate Transport in the Proximal Convolution of the Rat Kidney. I. Tubular Heterogeneity, Effect of Parathyroid Hormone in Acute and Chronic Parathyroidectomized Animals and Effect of Phosphate Diet 269

Vaupel, P., s. Grote, J., et al. 37

Vincent, D., s. Bauduin, H., et al. 69

Vogel, S., s. Humpeler, E. 287

Wahl, M., s. Schneider, W., et al. 103

Weskamp, P., s. Behn, C., et al. 259

Windhorst, U., Meyer-Lohmann, J.
The Influence of Extrafusal Muscle Activity on Discharge Patterns of Primary Muscle Spindle Endings 131

Wündsch, L., s. Trappl, R., et al. 165

Yagi, N., Matsubara, I.
Equatorial X-Ray Reflections from Contracting Muscle after an Applied Stretch 113

Yanagihara, K., s. Noma, A., et al. 43

Zandberg, P., Palkovits, M., Jong, W. de
The Area Postrema and Control of Arterial Blood Pressure: Absence of Hypertension after Excision of the Area Postrema in Rats 169

Indexed in Current Contents

Subject Index

A

Absorption coefficient 279—283
Acetylcholine 53—61, 115—119
Acetylcholine, parotic secretion 231—237
Acinar cells, pancreas 69—76
Action potential, atrium 121—129
Action potential, nerve 17—22
Action potential, papillary muscle 285—286
Acute renal failure 251—258, 275—278
Acute uremia 275—278
Adaptation-growth 91—94
Adaptation, intestinal 91—94
Adaptation intestinal, ATPase 83—90
Adenosine, myocardial effects 29—35
Adenylate cyclase 29—35
Adrenergic nerve terminals 63—67
Afferent activity 139—143
Afferent cardiac sympathetic nerve fibers 53—61
Afterload 23—27
Albumin 77—82
Alpha-adrenergic receptors 231—237
Alpha-adrenergic coronary control 187—194
α- and β-adrenergic functions 115—119
Angiotensin 169—173
Anions, replacement 121—129
Anoxia 221—230
Anoxia, K^+ concentration changes 207—213
Anoxic region 221—230
Antimycin A 77—82
AMP 69—76
Ampullary nerves 139—143
Amylase secretion 231—237
Arginine metabolism 275—278
Area postrema 169—173
Arterial blood pressure 169—173
Asthma, bronchial 1—6
ATPase-cecum mucosa 83—90
Atrial trabeculae 121—129
Atrium 53—61
Augmented breath 1—6

B

Barbiturate, thiopental 285—286
Beta-adrenergic receptors 231—237
Bilayer couple hypothesis 259—268
Blood flow 109—111
Blood flow, cerebral 103—107
Blood flow, myocardial 187—194
Blood flow, regional 157—164
Blood pressure 95—99
Blood pressure, control of 169—173
Brain, O_2 consumption 175—179
Bradykinin 53—61, 169—173
Breath, augmented 1—6
Brightness, subjective 165—168
Bronchial asthma 1—6

C

Caffeine, slow action potential 285—286
Calcium, erythrocyte shape 259—268
Calcium, noradrenaline release 63—67
Calcium, parotid secretion 231—237
Calcium, taurine efflux 203—205
Canine myocardium 187—194
Capnostat 289—290
Carbox dioxide pressure, end-tidal 289—290
Carcinosarcoma 37—42
Cardiac output 157—164
Cardiac output, distribution 157—164
Cardiac sympathetic fibers 53—61
Cardiovascular reflex response 169—173
Carotic loops 95—99
Catecholamines 63—67
Catecholamines, myocardial effects 29—35
Catheter flow meter 109—111
Cecum 91—94
Cecum mucosa 83—90
Cell shape changes 259—268
Cellular hyperplasia, cecum 91—94
Central nervous system 103, 107, 131—138
Cerebellar cortex, taurine efflux 203—205
Cerebellum 203—205
Cerebral blood flow 103—107
Chloride, and membrane current 121—129
Chlorotetracycline 259—268
Cholinergic receptors 231—237
Circular duodenal muscle 243—250
Circulatory activity, regional 157—164
Cochlea, anoxia and K^+ concentration 207—213
Constriction, coronary 187—194
Contractility 23—27
Contracting muscle 113—114
Cooling, hypothalamus 157—164
Cooling, nasal 115—119
CO_2 pressure, end-tidal 289—290
Coronary dilatory capacity 181—185
Coronary flow 181—185
Coronary innervation 187—194
Cortex, cerebellar 203—205
Cortex, O_2 consumption 175—179
Cortex, subarachnoidal space 103—107
Critical O_2 supply 37—42
Current application, intracellular 17—22
Current, inward, sinoatrial node cell 43—51
Cuvette, wedge 279—283
Cyclic 3′5′-AMP 29—35

D

Decerebrate rigidity 131—138
Deflation receptors 1—6
Denervated slow muscle fibres 17—22
Development, intrauterine 149—156
Diameter, vascular 109—111
Dibutyryl cyclic AMP 69—76
Diet, influence on cecum ATPase 83—90
Diffusion coefficient 37—42
Diffusion, oxygen 221—230
Dilatory capacity, coronary 181—185
2,3-diphosphoglycerade 287—288
Discharge activities, γ-efferents 195—201
Discharge pattern, muscle spindles 131—138
Distal inulin recovery 251—258
DS-carcinosarcoma 37—42
Duodenal muscle 243—250

E

Efferent vestibular system 139—143
Electrical activity, circular duodenal muscle 243—250
Electrical description, respiratory neurons 7—16
Electrolytic lesion in area postrema 169—173
Electromagnetic flow meter 109—111
Electronic device, end-tidal P_{CO_2} 289—290
Electroretinogram 165—168
Electronic characteristics, respiratory neurons 7—16
Embryo 149—156
Endolymph, cochlear 207—213
End-tidal gas pressures 289—290
Epinephrine 115—119
Equatorial X-ray reflections 113—114
Equilibrium dialysis 77—82
Erythrocytes 149—156
Erythrocytes, human 259—268
Espiratory neurons 7—16
Evans blue 279—283
Exercise 181—185
Exercise, and blood pressure 95—99
Excercise training 181—185
Exocrine pancreas 69—76
Experimental acute renal failure 251—258
Extracellular ions, replacement 121—129
Extrafusal muscle activity 131—138

F

Facilitated diffusion 221—230
Facilitatory interactions 139—143
Fast inward current 43—51
Fetal blood 149—156
Flow-diameter probe 109—111
Flow meter 109—111
Fluid transport in cat kidney 239—242
Follicle lumen, thyroid 145—148
Force-velocity relations 23—27
Furosemide, indomethacin antagonism 215—220

G

Gamma efferents 195—201
γ-motoneurons 195—201

Generator potential, optic 165—168
Glass electrodes 101—102
Glomerular filtration rate 239—242, 251—258
Glucose-1-phosphate 29—35
Glucose-6-phosphate 29—35
Guanidino succinic acid 275—278

H
Half saturation tension 287—288
H^+ activity 103—107
Haemoglobin 279—283
Heart rate 169—173
Heart rate, telemetry 95—99
Heat exchange 115—119
Heat, noxious 53—61
Hematocrit 287—288
Hemodynamics, renal 215—220
Hemoglobins 149—156
Hemoglobin, oxygen affinity 287—288
Heterogeneity, tubular 269—274
Histamine 53—61
Horizontal canal 139—143
Hydrofluoric acid etching 101—102
6-Hydroxydopamine 187—194
5-Hydroxytryptamine 53—61
Hypertension, absence of 169—173
Hyperthermia 115—119
Hyperthyroidism 23—27
Hypothalamus, blood flow control 157—164

I
Ia afferents 131—138
Indomethacin, furosemide antagonism 215—220
Induction of action potential 17—22
Induction of Na-K-ATPase 83—90
Inhibitory interactions 139—143
Inosine 29—35
Inspiratory neurons 7—16
Intestinal adaptation 83—90, 91—94
Inulin recovery 251—258
Iodoproteins 145—148
Iodoprotein 27S 145—148
Ion selective microelectrodes 207—213
Isolated heart, guinea pig 29—35
Isolated perfused liver 275—278
Isoprenaline, parotic secretion 231—237

K
Kidney failure 275—278
Kidney function, indomethacin 215—220
Kidney, micropuncture study 239—242
Kidney, phosphate transport 269—274
Kidney, proximal and distal tubules 239—242
Krogh's diffusion constant 37—42
K^+ specific microelectrodes 207—213

L
Lagena 139—143
Lanthanum 63—67
Lateral nasal gland 115—119
Left atrium, ventricle 53—61
Left ventricle 187—194
Light stimulation, optic system 165—168
Liver, isolated perfused 275—278
Luminance 165—168
Lung deflation, vagal 1-6

M
Magnesium 63—67
Malachite green 279—283
Manganese, parotic secretion 231—237
Mechanoreceptor 53—61
Medullary respiratory neurons 7—16
Membrane, Ca^{2+} distribution 259—268
Membrane current, atrium 121—129
Membrane potential duodenum 243—250
Membrane properties, respiratory neurons 7—16
Membrane resistance, duodenal muscle 243—250
Metabolic regulation of blood flow 103—107
Metabolism, arginine 275—278
Methylsulfate, and membrane current 121—129
Microelectrodes, K^+ specific 207—213
Microelectrode technique 43—51, 103—107
Microgel electrophoresis 145—148
Micropipette tip etching 101—102
Micropuncture of cat kidney 239—242
Micropuncture of kidney 269—274
Micropuncture, thyroid follicle 145—148
Microspheres 157—164
Microsphere technique 187—194
Minute rhythm 243—250
Morphology, respiratory neurons 7—16
Motilin 243—250
Muscle, denervated 17—22
Muscle, extrafusal 131—138
Muscle, applied stretch 113—114
Mucous secretion, nasal gland 115—119
Muscle spindle endings 131—138
Myocardial oxygen extraction 181—185
Myocardium 29—35, 187—194, 285—286
Myoglobin 221—230

N
Na-current 43—51
Na-K-ATPase 83—90
Na-K pump 63—67
Na transport, renal proximal tubule 77—82
Nasal blood flow 115—119
Nasal cooling 115—119
Natriuresis 215—220
Negative inotropic effect, thiopental 285—286
Nephrectomy 275—278
Nephron anatomy 239—242
Nephron filtration rate 239—242
Nerve length 17—22
Nerve stump 17—22
Neurotransmitters 203—205
Noradrenaline release, Ca^{2+} 63—67
Norepinephrine 187—194
Nucleic acid content, cecum mucosa 91—94
Nucleus tractus solitarius 169—173

O
Ontogeny 149—156
Optic generator potential 165—168
O_2-consumption, myocardial 181—185
O_2 consumption, of brain 175—179
O_2 diffusion 221—230
O_2 diffusion, tumor tissue 37—42
O_2 pressure, end-tidal 289—290
Oximetry 279—283
Oxygen affinity 149—156, 287—288
Oxygen consumption 175—179
Oxygen diffusion 221—230
Oyxgen diffusivity 37—42
Oxygen extraction, myocardium 181—185
Oxygen pressure, end-tidal 289—290
Oxygen saturation 279—283
Oxygen saturation, coronary venous 181—185
Oxygen uptake, myocardial 181—185
Oxystat 289—290

P
Pain producing substances 53—61
Pancreas 69—76
Papaverine 29—35
Parathyroidectomy 269—274
Parathyroid hormone 269—274
Parotic secretion, and Ca^{2+} 231—237
Papillary muscle, action potential 285—286
Pericardium 53—61
Perilymph, cochlear 207—213
Perivascular pH 103—107
Phenoxybenzamine 115—119
pH, local in subarachnoidal space 103—107
Photometry, thin layer 279—283
Phosphate compounds 149—156
Phosphate diet 269—274
Phosphate transport, renal 269—274
Phosphodiesterase 29—35
Pial arteriolar resistance 103—107
Pinocytosis, kidney 77—82
Placenta 149—156
Plasma renin activity 169—173
P_{O_2} decrase 175—179
Polyethylene glycol 91—94
Polyethylene glycol, dietary 83—90
Polyfructosan 239—242, 251—258
Portal vein 23—27
Postmenopausal women, O_2 affinity of hemoglobin 287—288
Potassium specific microelectrodes 207—213
Potassium stimulation of taurine efflux 203—205
Primary muscle spindle endings 131—138
Procion yellow 7—16
Propanolol 115—119
Prostaglandins, renal function 215—220
Protein content, cecum mucosa 91—94
Proximal convolution 269—274

Proximal ferrocyanide recovery 251—258
Proximal tubule 77—82
Psychophysics 165—168
Pulmonary artery 53—61

R

Receptors, α- and β- 231—237
Receptors, deflation 1—6
Receptor-receptor fibres 139—143
Red blood Cells 149—156, 259—268
Regional circulatory activity 157—164
Renal artery infusion 215—220
Renal function 215—220
Renal phosphate transport 269—274
Renal tubular leakage 251—258
Renal tubular transport 77—82
Renin activity in plasma 169—173
Respiratory neurons 7—16
Resting potential, atrium 121—129
Retroambigual region 7—16
Rhythm, minute 243—250

S

Saccule 139—143
Salivary secretion 231—237
Saturation tension, O_2 287—288
Secretagogue effect of Dibutyryl cyclic AMP 69—76
Secretion 69—76
Secretion, parotid 231—237
Shivering 157—164
Shivering 195—201
Sigh 1—6
Sinoatrial node cell 43—51
Skin temperature, γ-efferents 195—201
Slow-channel-mediated action potential 285—286
Slow inward current 43—51
Slow stretch 113—114
Slow waves 243—250
Smooth muscle 23—27
Smooth muscle 243—250
Sodium current 43—51
Sodium deprivation 63—67
Sodium excretion, renal 215—220
Sodium transport 77—82
Sodium transport cecum 83—90
Spinal cats 195—201
Spinal reflex loop 131—138
Stevens' power function 165—168
Stretch, muscle 113—114
Superfused cerebellar cortex 203—205
Sympathectomy, regional myocardial 187—194
Sympathetic coronary control 187—194
Sympathetic nerve fibers 53—61
Synaptic input 7—16
Systemic blood pressure 95—99

T

Tachypnoea 1—6
Taurine efflux, cerebellar cortex 203—205
Telemetric measurement of heart rate 95—99
Temperature dependence, O_2diffusivity 37—42
Temperature, nerve action potential 17—22
Tension trajectories 131—138
Tetracycline fluorescence 259—268
Tetrodotoxin 43—51
Thermal activation of efferents 195—201
Thermal reflex 195—201
Thermal stimulation, hypothalamus 157—164
Thermoregulation 157—164
Thermoregulatory system 195—201
Theophylline 29—35
Thin layer photometry 279—283
Thiopental 285—286
Thyroid follicles 145—148
Thyroglobulin 145—148
Thyroglobin distribution 145—148
Thyroxine 23—27
Tissue oxygen pressure 175—179
Triiodthyronine 23—27
Tubular heterogeneity 269—274
Tubular leakage 251—258
Tubular PO_4 transport 269—274
Tumor tissue 37—42
Twitch tension 285—286

U

Uneven ventilation 1—6
Urea synthesis 275—278
Uremia, arginine metabolism 275—278
Urinary inulin recovery 251—258

V

Vagal lung deflation 1—6
Vascular diameter 109—111
Vascular smooth muscle 23—27
Vas deferens 63—67
Ventilation, uneven 1—6
Ventricle 53—61
Veratridine 53—61
Vertical anterior semicircular canal 139—143
Vertical posterior canal 139—143
Vestibular system, *rana esculenta* 139—143
Visual generator potential 165—168
Voltage clamp 43—51
Voltage clamp, atrium 121—129

W

Wedge cuvette 279—283
Water exchange 115—119
Water rejection, renal 215—220

Pflügers Archiv · European Journal of Physiology

Contents of Volume 372 No. 3 1977

Continuation of Table of Contents

Excitable tissues and central nervous physiology (C)

207 **I. Melichar, J. Syka**
Time Course of Anoxia-Induced K^+ Concentration Changes in the Cochlea Measured with K^+ Specific Microelectrodes

243 **J. Riemer, K. Kölling, C. J. Mayer**
The Effect of Motilin on the Electrical Activity of Rabbit Circular Duodenal Muscle

285 **Y. Ikemoto**
Reduction by Thiopental of the Slow-Channel-Mediated Action Potential of Canine Papillary Muscle

Indexed in Current Contents

Pflügers Archiv · European Journal of Physiology

Contents of Volume 372 No. 3 1977

Heart, circulation, respiration and blood; environmental and exercise physiology (A)

221 **H. J. van Ouwerkerk**
Faciliated Diffusion in a Tissue Cylinder with an Anoxic Region

Instruments and Techniques

279 **J. A. E. Spaan, L. J. Garred, P. van de Borne**
Use of a Wedge Cuvette in Thin Layer Photometry and Its Application to Oximetry

Letters and Notes

287 **E. Humpeler, S. Vogel**
Oxygen Affinity of Hemoglobin in Postmenopausal Woman

289 **F. D. J. Smolders, H. Th. Folgering, J. A. Bernards**
Capnostat and Oxystat. Electronic Devices to Automatically Maintain the End-Tidal P_{co_2} and P_{o_2} of the Subject Connected to a Closed Respiratory Circuit at Adjustable Levels

Transport processes, metabolism and endocrinology; kidney, gastrointestinal tract, and exocrine glands (B)

215 **G. Kövér, H. Tost**
The Effect of Indomethacin on Kidney Function: Indomethacin and Furosemide Antagonism

231 **O. H. Petersen, N. Ueda, R. A. Hall, T. A. Gray**
The Role of Calcium in Parotid Amylase Secretion Evoked by Excitation of Cholinergic, α- and β-Adrenergic Receptors

239 **P. A. Friedman, F. Roch-Ramel**
Micropuncture Study of Fluid Handling in Cat Kidney

251 **C. Olbricht, J. Mason, T. Takabatake, G. Hohlbrugger, K. Thurau**
The Early Phase of Experimental Acute Renal Failure. II. Tubular Leakage and the Reliability of Glomerular Markers

259 **C. Behn, A. Lübbemeier, P. Weskamp**
Chlorotetracycline Induces Calcium Mediated Shape Changes in Human Erythrocytes. Is Ca Asymmetrically Distributed in the Red Cell Membrane?

269 **K. J. Ullrich, G. Rumrich, S. Klöss**
Phosphate Transport in the Proximal Convolution of the Rat Kidney. I. Tubular Heterogeneity, Effect of Parathyroid Hormone in Acute and Chronic Parathyroidectomized Animals and Effect of Phosphate Diet

275 **G. O. Perez, B. Rietberg, B. Owens, E. R. Schiff**
Effect of Acute Uremia on Arginine Metabolism and Urea and Guanidino Acid Production by Perfused Rat Liver

Continuation of Table of Contents see preceeding page

Springer International